

May 8, 1946.

My dear Sheng,

~~Think~~ The problem that you indicate is an interesting one, and I should be happy to assist you in any way that I can. However, I do not have at my disposal stocks of 5531-15300-A. However, I do have both 4540-a and 5531-15300-a, which I have been using for other heterocaryon experiments. I should be glad to send you these, but I must tell you that heterocaryons which I have made between these strains have had no detectable color on either minimal or complete medium. Therefore it is evident that the dose of Alb-2⁺ in this combination is indeed very ~~mm~~ small, and too small to be useful for your purposes. Since my experiments will entail analysis of this heterocaryon in terms of its components I do not believe that anything would be gained by its study in another laboratory. I would suggest other combinations.

In the course of another investigation, I had occasion to study the variability of nuclear ratios in combinations of the two albinos: 4637 and 15300, and found considerable variation in the pigmentation of cultures derived from hyphal tip isolations. The same should hold for monogenic comparisons at the 15300 locus. Since there is no assurance that heterocaryosis is the only means of symbiotic association between strains, I would recommend that a more feasible approach to your problem would consist of isolating hyphal tips from 15300⁺- 15300⁻ combinations, in an attempt to find cultures which by their pigmentation seem to have varying dosages, and analysing these heterocaryons by outcrossing. A further complication should be mentioned: there are indications that 15300 may mutate rather readily to a dilute allele which has a distinct pink color. I have given Dr. Ryan a sample of a recent isolate of such a stock.

Low dosage 15300⁺ combinations must be distinguished from this mutation. However while the mutant is pinkish, ~~these~~ such low dose combinations tend to be yellowish rather than pink.

If in view of my remarks you would still prefer the mutants you suggest I shall be happy to send them to you; on the other hand I would suggest that other combinations might be preferable, or the scheme I mentioned.

We are doing some studies now on the analysis of heterocaryons whose outcome may bear on the techniques of such analysis ; we shall keep you informed, through Dr. Ryan of such developments.

With best regards,

Sincerely yours,

Joshua Lederberg.